1: *J Occup Environ Med* 1996 Dec;38(12):1220-8 Related Articles, Books, LinkOut

Biological monitoring of exposure to cadmium, a human carcinogen, as a result of active and passive smoking.

Shaham J, Meltzer A, Ashkenazi R, Ribak J

Occupational Cancer Unit, Occupational Health & Rehabilitation Institute, Raanana Israel.

Cadmium (Cd), a known human carcinogen, is one of the components of tobacco and also has many industrial uses. Smoking Cd-contaminated cigarettes at work may cause an increase in blood levels and toxicity of Cd. For a population of nonexposed workers, we compared blood Cd and urine cotinine (Cot) levels as biological markers of exposure to cigarette smoke of active smokers (AS) and passive smokers (PS) with those of unexposed nonsmokers (UNS) in 158 workers. The mean Cd in AS (0.097 microgram%; ie, 0.097 microgram/100 mL whole blood) was significantly higher than in UNS (0.085 microgram%), and was very close to the mean Cd levels in PS (0.093 microgram%). Mean Cd levels in exposed past smokers (0.105 microgram% was higher than in nonexposed past smokers ($P < 0.05$) and in AS. The mean Cot level was significantly higher in AS than in PS or in UNS. Increased smoking was associated directly with increased blood Cd and urine Cot. Our results supported and proved quantitatively that exposure to cigarette smoke is harmful to both AS and PS, as we show that in both cases there is an increase in blood Cd. According to our results, exposure to cigarette smoke via active and passive smoking increases blood Cd by an average of 0.01 micrograms% over the background (UNS). We conclude that exposure to cigarette smoke is a confounder to be taken into account when carrying out epidemiological studies and surveillance programs on workers exposed to Cd at work.

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